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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/620,715	07/16/2003	Jiang Ji		9585
37663	7590	10/03/2005		
JIANG JI 4 HAWK DRIVE SALEM, NH 03079			EXAMINER FORTUNA, ANA M	
			ART UNIT	PAPER NUMBER
			1723	

DATE MAILED: 10/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/620,715

Applicant(s)

JI, JIANG

Examiner

Ana M. Fortuna

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 10-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/6/2003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-9, drawn to a composite membrane, classified in class 210, subclass 490.
 - II. Claims 10-16, drawn to a process of making a membrane, classified in class 264, subclass 41.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the membrane can be made by conventional phase separation including liquid non-solvents pore former, e.g water, alcohol, etc.
3. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Jiang Ji on 9/22/05 a provisional election was made with traverse to prosecute the invention of group I, claims 1-9. Affirmation of this election must be made by applicant in replying to this Office action. Claims 10-16

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withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-6, 8, 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Mahendran et al (US 5,914,039)(hereinafter '039).

Patent '039 discloses a membrane including the elements (i)-(iii) as claimed in claim 1 (Fig. 1, elements 39, 39', 37, and 38, column 3, lines 52-63, column 7, lines 18-33, column 8, lines 21-39).

Claim 2 is also disclosed (column 8, lines 230-34).

Re: claim 3, the middle layer is formed from organic polymer, e.g. hydrophilic PVDF (column 7, second paragraph).

Re: claims 4-6, and 8, the membrane in tubular or hollow fiber shape is disclosed (column 11, lines 39-54, claim 1).

Re: claim 9, the claimed membrane properties are disclosed in column 10, lines 45-56).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

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the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mahendran et al (5,914,039)(hereinafter 'patent 039) as applied to claim 1 above, and further in view of Strobel et al (5, 766, 473)(hereinafter patent '473). Patent '039 discloses film formation of the claimed membrane composition, coating spheres or particles with the particular support is not disclosed. It would have been obvious to one skilled in the art at the time the invention was made to use any support, e.g. flat, tubular, or particles for the membrane depending on the intended use, spherical membrane or particles will be suitable for example infiltration in packed columns or in chromatographic separations. Patent '473 teaches hydrophilic porous particles or spheres including a substrate and a coating of hydrophilic membrane (abstract, column 4, lines 5-20 and last paragraph); the substrate materials are also disclosed (column 5, lines 5-61). It would have been obvious to one skilled in the art at the time the invention was made to use a polymeric substrate with spherical shape, as disclosed in '473), to support the membrane of '039, depending on the desired configuration or intended use.

5. Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mahendran et al (5,914,039)(hereinafter 'patent 039) as applied to claim 1 above, and further in view of Cooper et al (3,676,193)(hereinafter patent '193). Patent '039 fails to disclose the coating solutions of different polymers, as claimed in a second embodiment of claim 2. Patent '193 teaches a braided support impregnated and coated with a first polymer, coating the support to form a layer on the braided polymeric material, and

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further using the coated support to cast a film of an additional polymeric membrane, to increase the thickness of the membrane is disclosed (see entire disclosure, in particular claims 1, 8-11, and 21). Based on the discussed teachings, it would have been obvious to one skilled in the art wishing to have a composite membrane on a braided support with distinct layers of polymer, to use the treated support of '193, which contains a layer of polymer, e.g. polyepoxy, polyurethane, etc (column 8, second paragraph), as support, and further cast the membrane with the hydrophilic membrane of '039, e.g. to provide strength to the membrane, and inherent (as produced by epoxy polymer, as claimed in claim 6) easier binding between the hydrophilic membrane and the support.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Additionally cited membranes are directed to membranes made from hydrophobic/hydrophilic polymers mixtures in a solvent and by phase inversion, on a support, in particular from polysulfone, pvdf, and a list of hydrophilic modifying polymers.

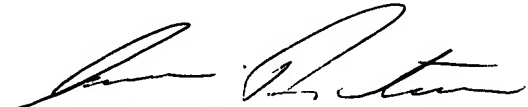
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ana M. Fortuna whose telephone number is (571) 272-1141. The examiner can normally be reached on 9:30-6:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on (571) 272-1151. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ana M Fortuna
Primary Examiner
Art Unit 1723

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